XIO3

1003 Amphion St.
Victoria, B.C.
CANADA V8S 4G2

May/June 1991

GARDEN CITY ATARI COMPUTER ENTHUSIASTS

Atari News and Rumours

by Rowland Grant

The big news this time is that A & B Sound has ceased selling Atari products. Early in March they sold out all their stock of Atari hardware and software at very low prices. A & B sound has carried Atari computers since 1982. I bought a lot of my equipment and software from them over the years. It's all very sad. When I asked for reasons, some of A & B 's staff said that they received little or no support from Atari Canada. So what else is new?

A conversation with Warren Huxley, A & B's computer department manager in Victoria, gave me quite a different insight. I should add that Warren is a long time Atari computer user. He has written articles for XIO3 some years back. According to Warren, the current recession in North America has resulted in lower PC computer sales. There are warehouses full of unwanted PC clones in Taiwan. So clone prices have dropped dramatically. As a result A & B can advertise a '286 computer with one megabyte of RAM, a 40MB hard drive, VGA graphics and a monitor for $849. This is less than the regular list price of a 1040STe without mono monitor or hard drive. I hear that Atari will respond by lowering its computer list prices, but will the drop be enough to get under the competition? (After I wrote that bit, Atari advertised 1040STe's at $499.99.) Anyway, in view of excellent clone sales, and the opportunity to bargain with many different suppliers for a deal, A & B Sound's decision to drop Atari is understandable. I noticed in a recent PSAN, a comment that some dealers have dropped Atari products in the Puget Sound area too.

Atari has announced that it has sold 2.5 million ST's so far. About half of these ST's are in Germany. The ST is considered a serious machine in Germany. Atari has captured a good part of the small business, professional and institutional market there. For instance, ST's are used in air traffic control operations, and were used for tabulations in the recent German elections. About twenty percent of ST sales have been made in Britain and thirteen percent in France. In those countries the ST is a very popular personal and entertainment computer. Only eight percent, or about 200,000 ST's have been sold in North America. And this is over a five to six year period. I believe that more than 200,000 Atari 400/800 computers were sold in North America in three years!

Continuing with the bean counting, Atari reported that it sold 200,000 ST's in 1990. Big deal! With a total of 2.5 million worldwide, they must have averaged close to half a million ST sales per year. Which means that ST sales are slowing down everywhere. Our smaller installed base of ST's makes the slowdown more noticeable here. Of course most computer manufacturers will be seeing smaller sales in this recession. Competition is very keen. To meet it, Atari Canada has laid off about 30 pecent of its staff. Apparently, this is the first step in a consolidation with Atari U.S.A. Rumours are that Alwin Stumpf, head of Atari Germany, could be moving to Canada. Stumpf is supposed to complete the reorganization of the new Atari North America division, boost sales and increase profits. Will Stumpf leave his successful operation in Germany? Don't hold your breath!

And if Atari is having a downturn, what about the small publishing companies that support Atari products? In North America, we are seeing the slow decay of Atari-only publishing. STart is going bimonthly. Advertising and subscriptions are dropping. The old Antic in its heyday had a circulation of well over one hundred thousand, whereas STart never exceeded seventy thousand. Antic publishing is also abandoning the overcrowded Amiga publications market. In Victoria, STart cannot compete on the news-stands with the low priced, glossy disk editions of magazines from Bitain, like ST Format. ST Journal is another example. It began publishing in the US last year and got good reviews. Unfortunately it ceased production in March because it couldn't make a profit in the small US market. On the other hand, Antic publishing is apparently doing well with it's PC oriented magazine. (Is that the writing on the wall?) Well anyway, we still have STart and a few newsprint magazines like ST World. Also, Atari has revived the Atari Explorer magazine. I hope it lasts!

The Atari TT030 is beginning to turn up at selected dealerships around North America. So far, there is no sign of it in Victoria. I notice that the TT received good reviews in the February Computer Paper and the February/March STart. Both reviewers felt that the TT could accomplish all that Atari has claimed for it. I understand that recent releases of some ST programs such as Calamus, Word Perfect and Prism-Paint have been checked out to ensure that they run on the TT as well. While much ST software will run as is on the TT, it's

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good to see the beginning trend to TT compatibility. The main concern of both reviewers was the list price range of $2400 (US) for a TT030/2-50 to $3800 for a TT030/8-80, all without a monitor. Prices of the '386 PC computers are dropping fast. A PC clone with the power and comparable features of the TT030/2-50 has been advertised recently for less than $2000 (CDN). And while I might prefer a TT to a '386 clone running Windows, a comparison shopper may not be so impressed. There are rumours that Atari is well aware of this, and that large price cuts may be expected.

Atari has exhibited a notebook size ST conputer at the recent CEBIT fair in Hannover Germany. The notebook comes with 4MB of RAM and a 20MB hard disk. There is no floppy drive. You must use an external drive or a link with another ST to input software. It is not clear whether or not the new notebook ST is a replacement for the Stacy. Also displayed was a prototype ST Pad. This is similar to the notebook but it has no keyboard. You must input commands, text and images by writing and drawing on a touch sensitive screen, using a special pen controller. I understand that the handwriting recognition system is still being developed.

As for XL/XE users, when the going gets tough, the tough get going. There is little in the way of new hardware except from Computer Software Services in Rochester NY. We are still waiting for their floppy disk interface board that goes with the Black Box. However, the availability of 8-bit custom chips at low prices from mail order outlets has encouraged lots of experimentation. For instance, I understand that someone has added a second Pokey chip to his XL, and managed to get eight voices of 8-bit sound or four voices of sixteen bit sound.

More recently, Charles Hughes of Sunnyvale California, has created a little circuit board that enables the use of a second PIA chip. This chip normally handles the game port information and the bank switching of RAM. Charles is interested in using the extra PIA to switch more RAM, up to 8 megabytes in fact! With this extra memory and a program by Tom Hunt, Charles can run a lot of "virtual machines". What the program does is copy all 64K of the memory of the operating XL, including the program that is running, to the extra RAM. So by taking a "snapshot" of the computer running each of several programs and storing them, one can switch from one running program to another as needed. For instance, you could switch back and forth between BOBTERM and TextPro without losing your place in either of them. It's almost like having a number of computers, each running a different program. Of course you can do this kind of thing with any XL/XE Atari that has the extra RAM, but the programs will be switched in blocks of 16K. To speed things up, Charles will wire his extra PIA hardware to switch 64K at a time, (that's how he gets the 8 MB capacity). This kind of built-in multiple "virtual machine" capability is one of the features of the new 80386 PC computers. Who would have thought that the old XL or XE could do it with a few low cost chips!

by Rowland Grant

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General Meetings

by Rowland Grant

The March general meeting featured hardware. John Picken discussed the care and repair of disk drives. He opened up various different drives to demonstrate their operation. The innards of an old Concord drive attracted a bit of attention. The April meeting featured desk-top publishing (or it was supposed to). I discussed my experiences with several 8-bit public domain programs that allow you to mix graphics images and text. During these meetings, the the library copied disks, mostly for ST members. Thanks to Ted Skrecky and Ron De Pol and Mike Harrison for bringing their equipment.

Ted Skrecky loaned his copies of the famous (and defunct) TAPS newsletter to the library for copying. Ted and his brother Doug have donated a number of back issues of ST Format to the library - so its thanks again to the Strecky's. Also thanks to Dr. Sim for his copies of ST Informer. All this good ST literature is stored (hidden?) out a George Rose's place. Our librarians have

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been a bit snowed under with new ST material. And now a in Vancouver. Eleven disks of 8-bit programs have also been added to the library.

John Picken and Gordon Hooper have designed a new Club promotional leaflet. Gordon has placed copies in A&B Sound and Tesseract. The handsome leaflet was prepared using Daisy Dot Three. It has been attracting some attention. And speaking of attention, the articles submitted by our Club members for publication in PSAN have been reprinted in other newsletters across the US. So at least we are getting known outside Victoria!

When John Picken sends a programming article to PSAN, he includes the program files as well. These have gone into the SPACE library and its BBS. Then, from one BBS to another, John's programs have travelled across the US, at least as far as New York. I suppose this process can introduce errors (unless you are using an error checking protocol) and that is what happened to his special version of TurboBASIC. We were delighted to receive a letter from Ron Fetzer of the Ol' Hackers Atari User Group (Oceanside NY). Ron is the author of the expanded TurboBASIC documents that we have in our library. Ron wanted a working copy of John's version of TurboBASIC. Ron sent to us a copy of the Ol' Hackers newsletter on disk and an updated version of his famous docs. Copies of these will be placed in the library. We will try to keep in touch with Ron and the Ol' Hackers.

George Rose held another one of his Atari socials at his house in Saanich. The turn out this time was a little smaller than last. So there was more beer and goodies for those that came. Of interest this time, was the running of George's Xerox copier. While not new, it turns out very good copy. George got the copier recently at an auction for a very small sum. But, it was a bit of a task to move the beast (four men could barely lift it). Another item not seen before at George's was an Atari 800 equipped with Omnimon and accompanied by a 810 drive. A relic of the good old days!

Conversations with members at the various meetings revealed that some are using their ST's for music production. Since the ST is excellent for driving MIDI sound synthesizers and the like, the next meeting or two will be devoted to different aspects of this interesting topic.

by Rowland Grant

BELLCOM

Some years ago, Don Bell of Peterborough, prepared a large descriptive list of public domain Atari 8-bit software for a BBS that he was planning to run. By the time he was finished he decided that this software could be made available to more people through mail-order. (At least I think I've got the story right.) Anyway, Don established a company he called Bellcom to distribute his collection of PD software.

His first catalogue was on disk, and you could print it out yourself. Soon Don began sending out brochures and announcements with his disks. Eventually he sent out a printed catalogue which was very well received. Don carefully reviews his software and prepares a fairly thorough description for each disk title in his catalogue. The latest Bellcom catalogue and its 1991 supplement are quite impressive. The Bellcom catalogue also lists Atari users groups, including ours.

Don actively searches out new PD software. He has been getting a lot of programs from overseas lately. He makes sure that all the instructions are in English. Don also had some German software changed to give screens, titles, responses etc. in English. Occasionally a program will turn up with a bug that Don missed initially. In such cases Don announces the bug and offers a replacement (free) to those who bought the program in question. I know that this is so because Don replaced one of my Bellcom disks a couple of years ago. Also Don will replace any Bellcom disk that does not run. Non-profit Atari user groups are encouraged to make copies of Bellcom disks for their members.

Bellcom seems to be an after work, one man project. And when all his bills are paid, I would guess that Don would be lucky to make a minimum hourly wage for his efforts. This kind of operation is not really a business, it is a labour of love. Don is helping keep our 8-bit Atari's relevant. He deserves our support. Bellcom is in Canada, so there is no exchange or money order problems. I just send a personal cheque with my orders. Bellcom catalogues are kept in the Club library, or you could write for one. Bellcom, P.O. Box 1043, Peterborough, Ontario, Canada K9J 7A5.

by Rowland Grant

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SIGS FOR: ATARI 8-BIT, ATARI ST/MEGA, AND IBM (CLONES)
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Peeking Around

by Gordon Hooper

... RON DE POL'S family did well in the Times-Colonist 10K Run. Son CHAD was first in his age-category and fifth overall, and wife DIANA had a very respectable time. Ron, it seems, must have spent the time as a couch potato, as his name did not appear in the list of finishers ... April 7 was open house at GEORGE ROSE'S home. Those members of the club who attended enjaoyed an afternoon of talking about just about everything, even computers. It was a very nice time, and thanks go to George and MARLENE, his wife. George says he will do it again, and everyone is invited again. A good time was had by all ... BOB ETHERIDGE was put to work when he appeared at George's home. Everybody else was eating sandwiches and drinking beer, but Bob had tools in hand and was checking over George's copier ... BOB NEX'S first newsletter was very impressive. He certainly did a better job than I did the first time ... JOHN PICKEN staying up all night painting a basement floor. Can't he think of anything better to do in the wee hours? ... FRANK SIMS discovering all the things that SpartaDos enables you to do ... TED SKRECKY (better known as Captain Smut) receiving thirty new disks for our public domain ST library from our connection in Vancouver, RON LUSSIER. That ought to keep him busy for a while. Ted also informs us that a magazine store on Johnson St. has assorted ST magazines for sale at $5, including disk ... Be sure and phone GORD with your juicy details of things other people don't want known ...

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OBERTON

Oberon is the latest computer language to be developed by Professor Niklaus Wirth. As far as programing power goes Oberon fits in somehwere between Modula 2 and Modula 3. Another language -big deal, right? Wirth's previous achievements include both Pascal and Modula-2 and he has used this experience to reduce the size of the Oberon compiler to only 39K! This is an outstanding size/power ratio. This was accomplished by including things which are important such as modularity and object orientation and eliminating everything else that is not absolutely essential. For instance any language which has the REPEAT and WHILE constructs does not need a FOR loop as well. Oberon drops the sacred FOR loop! With his enormous programing experience Wirth then proceeded to prune Modula-2 of all its dead weight and in the process eliminated most of the Modula-2 compiler so that resulting Oberon compiler is actually smaller than that for even Pascal. Currently a public domain compiler plus source code of this language is available for DECstation, Sparcstation as well as the Macintosh. I plan on acquiring a copy of the Macintosh version to gauge how much effort would be needed to produce a working ST version. Here's hoping.....

by Douglas Skrecky

COMING EVENTS

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The next general meeting is May 16. It will feature Midi by Brian Watt. The topic Should be very informitive. Also Dave Bacon will be showing some ST pictures. This meeting will be a good one.

At the general metting of June 20 will have guess speaker Havey Hoopfer, a expert in printer ribbon re-inking. He will have his re-inking equipment at the meeting and will be avalible to re-ink some of your ribbons. So bring your ribbons in June.

The July meeting will be Pizza Night! If you are interested in attending then give Gord Hooper a call at 386-0857, so he can get a Idea of how many might attend. I you can't make plans that far in advanc then the time and place will appear in the next newsletter.

ERRORS

All you eight-bit owners out there will be thrilled to learn that I have written a new error code list to add on to your Atari manual. This is basically a translation of the Error Messages found in the back of your manual that you refer to when you or the computer make a mistake. These are the numbers displayed on-screen such as "Error 137", which when you look it up is "Truncated Record - This error typically occurs when the record being read is larger than the maximum record size specified in the call to CIO. (BASIC's maximum record size is 119 bytes.)" Huh? Now you are going to be able to understand at least some of the computers intractable mysteries.

Error 2 - Insufficient Memory.
You are too ignorant to ever understand the intricacies of a computer.

Error 3 - Value error.
You fail to display the social principles or standards necessary to be considered a functioning member of the human race.

Error 4 - Too Many Variables
No wonder you can't organize your life.

Error 5 - String Length Error.
The length of twine you cut is too short to use as a substitute for your shoelace.

Error 6 - Out Of Data
This is the nineties. You're still living in the sixties. (Peace and love, brothers and sisters.)

Error 12 - Line Not Found.
Just for a change, the computer is acting stupid, not you.

Error 20 - Device Number Error.
First you must learn how to count before numbering your devices.

Error 130 - Nonexistent Device.
It is necessary for you to remember that you are only dreaming of getting a printer in the future. It isn't there yet, Bozo.

Error 138 - Device Time-out.
Your printer needs to interface with the coach.

Error 141 - Cursor Out Of Range
If the cursor is off the screen, how the hell am I expected to find it?

Error 142 - Serial Bus Data Frame Overrun
I haven't quite figured this one out yet, but I suspect it has something to do with people lying flat (VERY flat) on the pavement with lots of blood around.

Error 144 - Device Done Error.
Another one of the few which you can blame on the computer.

Error 167 - File Locked.
This keeps all you nosy people out.

Error 171 -Invalid POINT.
You won't win many debates using these.

Error 199 - SU Error.
SU stands for Stupid User. This is the source of 99.5% of computer errors.

It is a proven fact that when users complain of not being able to understand a program, 9 times out of 10 they have not even bothered to read the docs. You'll have to trust me on this one, but the one reason documentation is written is to explain the program. The manufacturer didn't pay someone big bucks to do all that writing for no reason.

I am one of the worst offenders in this regard. It brings back frustrating memories of assembling various items. I have the habit of not reading the instructions until I have done something which is un-doable. Why I don't read them in the first place and avoid the problem is one of life's unexplained mysteries.

It is simply an unstated fact of computer life that computer users will not read docs until after they have sat and screamed obscenities at the machine for periods of up to half-an-hour. After they have that out of their systems, they will sit down and look up their problems in the manuals' list of contents and turn to the page indicated to find out what they're doing wrong. We computer users like to think we're more intelligent than the general population so you'ld think we would have enough brains to learn how to do something before attempting it with no idea of how or what it's supposed to do. But then you'ld also think we'd be smart enough to play a game without becoming addicted to it, and we've all played games until the wee hours of the morning at one time or another, haven't we?

Speaking of lack of grey matter, why is it that it takes a major disaster such as having typed for 8 hours straight and forgetting to write it to disk or make a back-up before the new user remembers that the number one rule for computing is ALWAYS MAKE A BACK-UP. Remember this the next time you wish to flush your computer down the toilet.

by Gordon Hooper

COMPUTER NUMBERS
AN INTRODUCTION

by

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Before you let the title scare you off consider this: Computers are not "math whizzes. In fact, the 6502 can't do more than add or subtract small numbers and multiply or divide by two. At the lowest (electronic) level, computers only recognize and respond to the presence or absence of voltage. This is about as complex as a light bulb – if power is there the bulb is "on", without power it's "off". Since we want to use computers to compute, it's easier to consider "on" as meaning "1" and "off" as meaning "0". There you have them: the only two digits used in the brain of your computer.

In computer terms, the bulbs are called "bits" and a more accurate way to picture them is as rechargeable batteries. Because we need hundreds of thousands of bits to make a useful computer, it is convenient to think of them in terms of larger units. The most important unit is the "byte" which is made up of eight bits. Then there are "words" which consist of two bytes. Next to justify all the money spent on 16/32 bit computers, it became necessary to come up with "long words" which consist of four bytes (or two words or 32 bits).

Aside from convenience, the other reason for bytes, words, etc. is that microprocessors are built to handle units of these standard sizes. Being able to work with, read, or write a full byte or more at a time is obviously faster than working bit by bit. You can see the speed advantage by looking at a few common examples: One reason an 8-bit computer is faster than a calculator is that the calculator moves its data serially (one bit at a time) while the computer handles full bytes (eight bits in "parallel"). Similarly, a hard drive uses parallel data transfer and is much faster than a floppy or a modem which operates serially.

One way to picture a byte is to hold out both hands with your thumbs folded under. Your fingers represent bits: any, all or none may be extended to represent "1" while those out of sight are "0". If you're really into playing with your fingers, you can try varying combinations to figure out how many bit patterns are possible. Those past the finger counting stage can calculate that each bit has two possible values and, for each of these every other bit has two. Thus we have 2x2x2x2x2x2x2x2 or 256.

Using bit patterns to represent values will let us get a lot more use out of every byte than we'd get by simply counting bits. We have 256 patterns, one of which is all 0's, so we can represent values in the range 0-255. The problem becomes how to identify the patterns since memorization is out of the question (at least for me).

The solution lies in "powers" of 2. We know that 2x2, commonly called "two squared", is written as 2^2 and that 2x2x2 can be represented by 2^3. Note that each time we multiply by 2, we add 1 to the power (the superscript number). Obviously then if we divide by 2, we subtract 1 from the power. So to multiply 2 (or any other number) by itself, we add 1 to the power and to divide, we subtract 1. Here are a few examples:

2x2	=	4	= 2^2		
2x2x2	=	8	= 2^3	= $2x2^2$	= $2^{(2+1)}$
2x2x2x2x2	=	32	= 2^5	= 2^2x2^3	= $2^{(2+3)}$
2x2x2x2x2x2x2	=	128	= 2^7	= $2x2^6$	= $2^{(6+1)}$
2x2x2x2x2x2	=	64	= 2^6	= $2^7 \div 2$	= $2^{(7-1)}$
2x2x2x2	=	16	= 2^4	= $2^7 \div 2^3$	= $2^{(7-3)}$
2	=	2	= 2^1	= $2^2 \div 2$	= $2^{(2-1)}$

The only thing we haven't figured is the value of 2^0. If we take $2^3 \div 2^3$ we get 1 and we can write $2^{(3-3)}$ or 2^0. So any number ($100 \div 100 = 10^{(2-2)} = 10^0 = 1$) to the power 0 is 1. Now to determine byte values we multiply each bit by a power of 2.

We do a very similar thing every time we read the mileage on a car. If an odometer looked like the diagram below, we'd say we've travelled eleven thousand and eleven miles (or kilometers if you're north of 49). We calculated this by multiplying each digit shown by the power of ten underneath it. Though we didn't do it consciously, what we did was:

$0x10^7$	=	0x10x10x10x10x10x10x10	=	0
$+0x10^6$	= +	0x10x10x10x10x10x10	=	0
$+0x10^5$	= +	0x10x10x10x10x10	=	0
$+1x10^4$	= +	1x10x10x10x10	=	10000
$+1x10^3$	= +	1x10x10x10	=	1000
$+0x10^2$	= +	0x10x10	=	0
$+1x10^1$	= +	1x10	=	10
$+1x10^0$	= +	1x1	=	1
				11011

0	0	0	1	1	0	1	1
7	6	5	4	3	2	1	0

Now what if each drum on the odometer held only two digits, 0 and 1? In this case, the first drum would go from 0 to 1 and roll around to 0 every two miles. Each time it rolled around, the second drum would go up by 1. So if we had a reading of "one zero" we'd know we'd gone two miles. If we continue, the first drum again runs from 0 to 1 to 0. This time the second drum would also roll around to 0 and the third drum go to 1 etc.

How would we now interpret the same diagram? We calculate it the same way as we did in "decimal" only now we're using "binary" (two's) because we know a complete revolution of one drum represents two.

$$
\begin{array}{rcrcr}
0\times2^7 & = & 0\times2\times2\times2\times2\times2\times2\times2 & = & 0 \\
+0\times2^6 & = & +\ 0\times2\times2\times2\times2\times2\times2 & = & 0 \\
+0\times2^5 & = & +\ 0\times2\times2\times2\times2\times2 & = & 0 \\
+1\times2^4 & = & +\ 1\times2\times2\times2\times2 & = & 16 \\
+1\times2^3 & = & +\ 1\times2\times2\times2 & = & 8 \\
+0\times2^2 & = & +\ 0\times2\times2 & = & 0 \\
+1\times2^1 & = & +\ 1\times2 & = & 2 \\
+1\times2^0 & = & +\ 1\times1 & = & \underline{1} \\
 & & & & 27
\end{array}
$$

Bits in a byte work exactly the same way as our binary odometer. When a bit rolls around to 0, the bit to its left increases by one. If that causes the second bit to roll around, then the third must increase and so on. This continues until all eight bits read 1. One more increase rolls the whole byte back around to 0's.

Unlike an odometer (except in some used car lots), you can decrease a byte. In this case, the bits act the same way as before except in reverse. If you started with a byte full of 0's and decreased it by one, you would end up with a byte full of 1's which could eventually be decreased down to all 0's again.

Programmers often have a need to picture bit patterns in their minds and with most numbers this is not easy. Sure 255 is 11111111 and 2 is 00000010 but what about something like 157? There must be an easier way than pulling out the pencil and paper or the calculator. There is.

Let's redesign the odometer once more. This time we'll only use two drums. We'll put the digits from 0-9 on each but we'll add the letters from A-F between the 9 and the 0 so that A represents ten; B, eleven; etc. up to F which is fifteen. Now the first drum measures 16 miles (0-F) for one complete revolution. How does this help? Let's mount it under our binary odometer and have a look. While we're at it, let's split both in two so that we can look at four bits at a time. Assume we've travelled 15 miles and the odometers looks like this:

0	0	0	0	1	1	1	1

0	F

Drive one more mile and note how both displays roll over at the same time into the higher half:

0	0	0	1	0	0	0	0

1	0

and 185 more (we're up to 201):

1	1	0	0	1	0	0	1

C	9

and 45 more (our total is now 255).

1	1	1	1	1	1	1	1

F	F

The advantage is obvious: we only have to be able to convert bit patterns from 0-F or 0000-1111 and most of us can do that easily. This system is called "hexadecimal" because its base is 16. The characters used are called "hexits" and each hexit represents one "nybble" (half a byte – I can hear the groans but I didn't make that up). When numbers are written in hex, they are usually written with a dollar sign so the 201 mile reading above would be $C9.

With four hexits, we can represent two bytes (one word) which is the largest unit you have to work with in 8-bit computers. In the example above, rolling over from the 255 mile mark would result in $0100, the equivalent of 256 decimal. By the way, when you hear people talk about a "page" of RAM or a page address, they're speaking about multiples of $100. On an 8-bit, there are 256 pages each with 256 bytes (65536 bytes or "64K").

Hex and binary numbers are added, subtracted, multiplied and divided exactly the same way as decimal. The only difference is that you work with hexits or bits. Unless you're a real "nuts and bolts" type, you'll probably never have occasion to do math in hex or binary. Being able to convert between bases is however, very useful and not just to programmers. For example, the pins on a dot matrix printer are controlled in binary. In fact, the pins can be thought of as a byte standing on end; to fire a pin (bit), you make it 1. Setting up printer graphics or download characters requires you to be able to convert from binary to decimal.

Conversion between bases is done by multiplication and division. There are easier ways: the fastest and most convenient is a calculator with conversion routines. If you don't have one, Turbo BASIC will convert between decimal and hex and will even let you program values in hex. If you're able to picture bit patterns from hexits, that's really all you need. **John Picken**

G.C.A.C.E. Library News
Atari 8-Bit

The following programs were obtained from Bellcom. Naturally they reflect the interests of the the purchasers. If you would like to see other topics you should let the librarian know, or better still, maybe you might like to buy some disks from Bellcom and donate copies to the library.

S.O.S. MANGAN
SOS Mangan is an illustrated text adventure game. While you were dozing at the controls, pirates broke into your space ship and stole your cargo. In the melee you were wounded. The game starts in the control room and you need a first aid kit. The program is coded in uncompiled Turbo BASIC. So you could use this program as a pattern to fashion your own adventures.

MAIL PRO
A mailing list database coded in Turbo BASIC. The size of the fields reflects addresses in the US with their two letter state abbreviations. However, the code is uncompiled so you could alter it to better suit Canadian addresses.

EASYFIND 2.0
A database program that emulates a card catalogue. It was originally set up as a finder for Atari magazine articles. In fact we have a few Antic index disks that use this program. However, you can use EasyFind for any kind of data as long as you conform to its simple record structure.

DISKBASE 1.0
The most sophisticated PD database that I have seen so far. This machine language program will, in theory, handle files containing up to 65525 records. Each record can be complex, having up to 255 fields of up to 255 bytes each. So this program could easily overwhelm disk storage, even a hard drive. For data output there is a small macro language that enables you to carry out very complex conditional sorts. Output is to screen, disk file or printer.

CHICK-SCRATCH 5.9
A shareware word processor by Robert Chick. It uses the SpeedScript and Textpro command system. It is a bit more powerful than Speedscript and a little less so than Textpro. It has the option of turning word wrap on or off. This is handy if you are using Chick-Scratch to write ASCII code for assemblers and compilers.

NEWSLETTER READER
This machine language program enables you to prepare and run a disk-based newsletter. Newsletter Reader will format wordprocessor text files for screen presentation. The font can be changed and micropainter format (62 sector) pictures can be displayed. There is an elaborate set of coded commands. By including an appropriate selection of these commands in your text files, you can control how the text or images will be displayed. You could use this program to run disk-based tutorials too.

COLOUR ENHANCER
Micropainter and comparable art programs are limited to a selection of four colors from a palette of 128. The Colour Enhancer is a drawing program that can use all 128 colours in one picture. Moreover, this program will allow you to re-colour Micropainter and other Antic 14 type images. The Colour Enhancer does not seem to have a zoom mode, so useful in Micropainter, however the arrow keys do provide an effective form of fine control.

HI-RES GRAFIX DUMP
A Turbo BASIC program that collects up to eight picture files (of the 62 sector variety) in memory. For this reason you need 128K or more of RAM. The pictures can be viewed on screen, rearranged and printed by any Epson compatible printer. The eight printed images will fill a standard page when printed out. The 'images' could be of text as well as illustrations, so this program could be useful in the production of pages for newsletters and leaflets. DIGITAL EDITOR, a Bellcom program already in the library, could be used to prepare text and image files for Hi-Res Grafix Dump.

THE WORKS
It is a desk-top publishing program that rquires XL/XE's with RAM upgrades. Text is created using a word processor. The Works is essentially a page layout utility for the text. It allows you to select fonts and add Typesetter fomat icons or other illustration files. You can set up two or three column pages. There is also a way to use more than one font on a page. The instructions are not very clear so you will have to experiment with the program.

BELLCOM SAMPLER
The sampler has three games, a sound demo and a database program. The games are Xagon (a Q-bert clone), Monty (Montezuma's revenge) and Chess. The chess game has good graphics and animation, also it won't allow you to cheat! I am not a skilled chess player and I found myself on the defensive throughout the game. The database, from Oct/86 Analog, is a good one by the Schappel-Kolb team.

by Rowland Grant